BAZHIN, N.M.; LIKHACHEVA, N.M.; BUBNOV, N.N.; VOYEVODSKIY, V.V.

Reactions involving a hydrogen atom in the system $H_2O + H_2SO_4 + FeSO_4$. Reaction with Fe^{+2}. Kin. i kat. 6 no. 6:1105-1108 N-D '65
(MIRA 19:1)

1. Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya AN SSSR. Submitted September 14, 1964.

L. 17989-66   EWT(m)/EWP(j)/T/ETC(m)-6   WW/JW/WE/RM

ACC NR: AP6007776   SOURCE CODE: UR/0195/66/007/001/0161/0165

AUTHOR: Bazhin, N. M.; Kuznetsov, E. V.; Bubnov, N. N.; Voyevodskiy, V. V.

ORG: Institute of Chemical Kinetics and Combustion, SO AN SSSR (Institut khimicheskoy kinetiki i goreniya, SO AN SSSR)

TITLE: Reactions of hydrogen atoms in the system water-sulfuric acid-ferrous sulfate. II. Reactions with unsaturated compounds

SOURCE: Kinetika i kataliz, v. 7, no. 1, 1966, 161-165

TOPIC TAGS: hydrogen, free radical, free radical reaction, unsaturated hydrocarbon

ABSTRACT: Previous work has shown that UV irradiation of $FeSO_4$ solutions in dilute sulfuric acid at 77K leads to the formation of hydrogen atoms, which are stable at this temperature. In this work, the reactions of such hydrogen atoms at 90K and 120K with acetylene, ethylene, propylene, allyl alcohol and carbon monoxide were studied. The concentrations of hydrogen atoms and of the reaction products were measured by observing the EPR spectra of the samples. Except for acetylene, all EPR measurements were made at 77K. Hydrogen atoms add to acetylene to form vinyl radicals whose hyperfine structure is similar to that obtained by other workers in the photolysis of HI in the presence of acetylene at liquid helium temperatures. In discussing the mode of addition, the authors compare their observations with other work on the addition of hydrogen atoms to deuterated acetylene. Addition of hydrogen atoms to

Card   1/2   UDC: 541.141:546.722'226—145.2

L 17989-66

ACC NR: AP6007776   /

propylene leads almost exclusively to the formation of isopropyl radicals. It was observed that ethyl and isopropyl radicals do not decompose under the influence of UV or visible light under experimental conditions. The spectrum of the reaction product obtained from allyl alcohol is very similar to those of hydrocarbon radicals $RCH_2\dot{C}H_2$ and therefore can be ascribed to the radical $\dot{C}H_2CH_2CH_2OH$. Since a protonated form of allyl alcohol is involved, the radical in this case must be $\dot{C}H_2CH_2CH_2OH_2^+$. The energy decrease due to the increased separation of the unpaired electron and the charge on the hydroxyl group must be sufficient to offset the energy increase of localization of the unpaired electron on a primary rather than on a secondary carbon atom. Addition of a hydrogen atom to CO yields a product whose spectrum consists of a doublet with a separation of approximately 132 e, and can be ascribed to the radical $H\dot{C}O$. The radical decomposes under the influence of light, probably to H and CO. The authors conclude that under the above conditions hydrogen atoms can react with unsaturated compounds by adding to double or triple bonds, or to unshared electron pairs. Useful quantitative data concerning unsaturated compounds can be obtained in this manner. Orig. art. has: 2 figures.   [VS]

SUB CODE: 07   SUBM DATE: 14Jun65/ ORIG REF: 005/ OTH REF: 006/ ATD PRESS:
                                                                    4212

Card   2/2

L 45776-66   EWP(j)/EWT(m)   RM/JW

ACC NR: AP6030704   SOURCE CODE: UR/0195/66/007/004/0732/0734

AUTHOR: Bazhin, N. M.; Kuznetsov, E. V.; Bubnov, N. N.; Voyevodskiy, V. V.

ORG: Institute of Chemical Kinetics and Combustion, SO AN SSSR (Institut khimicheskoy kinetiki i goreniya SO AN SSSR)

TITLE: Reaction of the hydrogen atom in the system $H_2O+H_2SO_4+FeSO_4$. III. Reaction with saturated organic compounds

TOPIC TAGS: hydrogen atom reaction, methanol, ethanol, isopropyl alcohol, ethylene glycol, isobutyric acid, malonic acid, acetone, free radical

ABSTRACT: Atomic hydrogen obtained by the action of UV light on frozen $H_2O+H_2SO_4+FeSO_4$ at 77K was previously shown to react with unsaturated organic compounds. In the present paper, the authors studied the reaction with a series of saturated compounds having weak C-H bonds (methanol, ethanol, isopropyl alcohol, ethylene glycol, isobutyric acid, malonic acid, and acetone). The reactions were carried out with 0.1 M solutions of the organic reagents at 90 and 120K, and the products were identified from the EPR spectra. It was found that the reaction between H and methanol, ethanol, isopropyl alcohol, malonic acid, and isobutyric
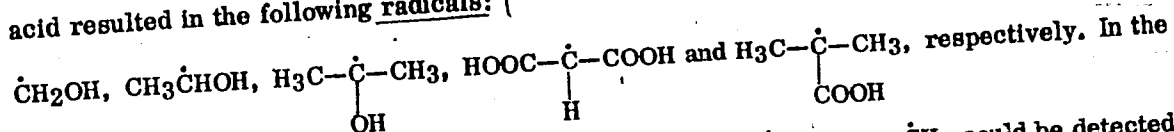
Card 1/2   UDC: 543.878;546.11-123-145

L 45776-66

ACC NR: AP6030704

acid resulted in the following radicals:

$\dot{C}H_2OH$, $CH_3\dot{C}HOH$, $H_3C-\overset{\cdot}{\underset{OH}{C}}-CH_3$, $HOOC-\overset{\cdot}{\underset{H}{C}}-COOH$ and $H_3C-\overset{\cdot}{\underset{COOH}{C}}-CH_3$, respectively. In the

case of methanol, the $\dot{C}H_2OH$ was further broken down to $H\dot{C}O$, but no $\dot{C}H_3$ could be detected.

With acetone, the reaction yielded $CH_2-\overset{+}{\underset{OH}{C}}-CH_3$ instead of $H_3C-\overset{\cdot}{\underset{OH}{C}}-CH_3$, while in the case of

ethylene glycol, only $\dot{C}H_2-\overset{}{\underset{O}{C}}-H$ and no $\dot{C}H_2OH$ could be detected. The mechanism by which

atomic H at approximately 90K can capture hydrogen from alcohols, organic acids, and
ketones is discussed. Orig. art. has: 5 formulas and 1 figure.   [26]

SUB CODE: 07/ SUBM DATE: 08Oct65/ ORG REF: 004 / ATD PRESS: 5084

BUBNOV, N. N.

BUBNOV, N. N.

Bubnov, N. N. "A method for increasing the productivity of crushers in the preparation of various t pes of solutions and concrete", Sbornik materialov po kommunal. khoz-vu, No. 6, 1948, p. 8-12.

SO: U-3261, 10 April 53, (Letopis 'Zhurnal 'nykh Statey, No. 11, 1949).

KRUPENINA, M.M.; FEL'DMAN, A.Ya.; ZABELOTSKIY, L.M.; BUBNOV, P.I., red.;
SEGAL', N.M., red.; DMITRIYEVA, N.I., tekhn. red.

[Yarn beam frame without tensioning tent for ribbon looms] Bes-
shatrovaia navoinaia rama k lentotkatskomu stanku. Moskva, Gos.
nauchno-tekhn. izd-vo M-va legkoi promyshl. SSSR, 1956. 34 p.
(MIRA 11:10)

1. Russia (1923-   U.S.S.R.) Ministerstvo legkoy promyshlennosti.
Byuro tekhnicheskoy informatsii.
(Looms)

BUBNOV, P. M.

S. G. Afanasov and P. M. Bubnov, "Wide-range Small-size Oscillator System of the Decimeter Band." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep 58.

Construction of the triode decimeter band oscillators is analyzed, in which strip transmission lines with periodically varying parameters are used as oscillator loops.
Methods are presented to compute such loops and their experimental characteristics are given.

BUBNOV, F. S.

BUBNOV, F. S. "The peculiarities of the growth of leguminous and grain crops under different sowing periods," Doklady (Mosk. s.-kh. akad. im. Timiryazeva), Issue 9, 1949, p. 34-41

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

H

USSR/Cultivated Plants. Fodder Plants.

Abs Jour : Ref Zhur-Biol., No 15, 1958, 68243

Author   : Bubnov, P. S.
Inst   : Belorussian Agricultural Academy.
Title   : Sowing Dates of Corn Planted for Green Fodder.

Orig Pub : Tr. Belorussk. s.-kh. akad., 1957, 23, No 2,
           61-66

Abstract : As the sowing dates of corn were studied for
           the years of 1950-1954 in Mogilev Oblast', it
           was determined that the most favorable time
           for sowing is during the last ten days in May.
           In order to use corn for green fodder in a
           green conveyor, it should be sown every 20 days,
           starting with the middle of May and continuing
           until the middle of July. Experiments have

Card   : 1/2

95

USSR/Cultivated Plants. Fodder Plants.

Abs Jour : Ref Zhur-Biol., No 15, 1958, 68243

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demonstrated the advantage of planting corn
for green fodder and silage with an undercrop
of annual pulse crops, such as spring vetch,
woollypod vetch, fodder lupine, and pea. These
mixtures produce higher yields than corn sown
by itself. In addition, the pulse crops enrich
the carbohydrate mass of the corn with proteins.
As corn was sown on 20 May with an undercrop of
annual masses, it produced a green mass yield
of 539-570 centners/hectare, whereas as corn
was sown by itself, the yield amounted to 428
centners/hectare. Vetch and pea comprised
22-25 percent of the yield, and lupine, 42
percent. -- M. A. Novoderzhkina

Card   : 2/2

BUBNOV, Sergej, inz.

International meeting of UNESCO for seismology and antiseismic technique. Gradevinar 16 no. 8:297-299 Ag '64.

BUBNOV, Sergej, inz.   (Ljubljana)

Safety of buildings from earthquakes. Some suggestions for
the issuance of new regulations. Gradevinar 14 no.6:178-183
Je '62.

BUBNOV, Sergej, inz. (Ljubljana)

International Congress on Prestressed Concrete. Pt.1. Gradevinar
15 no.1:6-11 Ja '63.

BUBNOV, Sergej, inz. (Ljubljana)

International Congress for Prestressed Concrete. Gradevinar
16 no.3:85-88 Mr '64.

BUBNOV, S.I.

Practices of bulldozer operators should be popularized.
Transp.stroi. 9 no.9:6 S '59.   (MIRA 13:1)
(Bulldozers)

30991

S/124/61/000/009/020/058
D234/D303

26.VI.20

AUTHOR: Bubnov, T.T.

TITLE: Distance measurement of the direction of a stream

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 9, 1961, 94-95,
              abstract 9 B688 (Tr. Kuybyshevsk. aviats. in-t, 1959,
              no. 8, 41-47)

TEXT: A brief description of the methods of measuring the
directional angle of a gas stream with the aid of cylindrical caps
in the hot zone of a gas turbine motor and with the aid of a small
weathercock under the conditions of large velocities and low temper-
atures. The cylindrical caps have an electric distance drive and
potentiometric transmitters of the rotation angle and immersion
depth. The error in measuring the rotation angle is $\pm 1^\circ$. For
distance transmission of the rotation angle of the weathercock it
is recommended using selsyns connected in transformer regime. Accor-
ding to the author's data, selsyns with distinctly pronounced poles

Card 1/2

30997

S/124/61/000/009/020/058
D234/D303

Distance measurement...

give tracking accuracy of ± 0.5°, those with indistinctly pronounced poles ± 0.1°. /Abstracter's note: Complete translation/

Card 2/2

BUBNOV, T.T.

Electric dynamometer. Izm.tekh. no.8:35 Ag '62.   (MIRA 16:4)
(Dynamometer)

BUBNOV, V.A.

AUTHOR: Ovcharenko, E.

107-57-5-26/63

TITLE: Long-Distance VHF Propagation (Dal'neye rasprostraneniye UKV)

PERIODICAL: Radio, 1957, Nr 5, pp 22-23 (USSR)

ABSTRACT: Recently a conference on long-distance vhf propagation was held in
Moscow; it was organized by these three organizations: Nauchno-tekhnicheskoye
obshchestvo radiotekhniki i elektrosvyazi imeni A.S. Popova (Scientific and
Engineering Society of Radio-Engineering and Electrocommunication),
Vsesoyuznyy nauchnyy sovet po radiofizike i radiotekhnike AN SSSR (All-Union
Scientific Council for Radiophysics and Radio Engineering, AS USSR),
Institut rdaiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering
and Electronics, AS USSR). Over 250 persons took part in the activities of
the Conference; among them scientists and professors from Leningrad, Khar'kov,
Gor'kiy, Odessa, Tomsk, and other cities. Fifteen reports were delivered and
discussed, of which 6 were devoted to vhf tropospheric scatter propagation.
Professor A.G. Arenberg, Doctor of Technical Sciences, opened the Conference.
A brief outline of today's investigations and uses of tropospheric propagation
is presented in the article. Professor A.N. Kazantsev delivered a report on
the "Diffused Propagation of Meter Radio Waves in the Ionosphere" in which he
briefly reviewed the materials of the Eighth Plenary Conference of the Inter-
national Consultative Committee for Radio (Warsaw, September 1956). American
and Canadian commercial scatter-propagation communication lines were mentioned.

Card 1/3

107-57-5-26/63

Long-Distance VHF Propagation

Kazantsev noted that the USSR is lagging in the matter of scatter propagation. V.A. Bubnov reported the results of the recording of levels of the Khar'kov tv station at various distances and also the experiments of twin reception of 67.6/71.1 and 77.25/83.75 mc between Khar'kov and Izyum. A.I. Khachaturov reported preliminary results of a trans-horizon scatter recep-tion Moscow-Odessa and Leningrad-Odessa observed in May to September 1955. A type IP-14 noise meter and a four-element Yagi antenna with a loop radia-tor were used. S.K. Sotnikov, a radio amateur, reported his experiments of tv dxing during the summer of 1956. His results are described in Radio, 1956, Nr 12 and in 107-57-5-28/63. M.V. Boyenkov in his report "About a Long-Distance Ionospheric Propagation of VHF" examined the peculiarities of propa-gation of 6 to 10-m waves over distances of a few thousand kilometers. Monthly predictions of vhf communication conditions for various routes from 1,600 to 14,500 km are published in the USSR. D.M. Vysokovskiy dealt with theoretical and mathematical problems in his report "Some Problems of the Theory of VHF Diffuse Propagation in the Troposphere". Also these theoretical reports were delivered: "Diffusion of Radio Waves in the Ionosphere and Long-Distance Propagation of VHF" by Ya. L. Al'pert; "Turbulent Intermixing and Diffusion of Radio Waves in the Ionosphere" by B. N. Gershman; "An Altitude-Wise Study of the Multiple Structure of Ionospheric Stratum With a

Card 2/3

107-57-5-26/63

Long-Distance VHF Propagation
 Frequency-Separated Reception" by S. F. Mirkotan; "On the Methods of Calcula-
 tion of Radio-Wave Diffusion on Random Inhomogeneities" by V.A. Zverev.
 The Conference found necessary to organize broad theoretical and experimental
 investigations of vhf scatter propagation in 1957-1960. Steps toward this end
 are listed in the article.
 There are two Soviet references.
AVAILABLE: Library of Congress

Card 3/3

BUDNOV, V.A., Cand Tech Sci --(diss) "Study of diffusion of radio-
waves of the third television channel beyond the horizon on the
territory of Khar'kovskaya Oblast." Khar'kov, 1959. 11 pp (Min of
Higher Education UkSSR. Khar'kov Polytech Inst im V.I. Lenin),
120 copies (KL,32-59, 103)

-18-

S/2563/64/000/230/0070/0076

ACCESSION NR: AT4041813

AUTHOR: Bubnov, V. A.

TITLE: Self similar motion in a thermal-boundary layer

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy*, no. 230, 1964.
Tekhnicheskaya gidromekhanika (Technical hydromechanics), 70-76

TOPIC TAGS: non-isothermal boundary layer, temperature distribution, boundary
layer, single slope profile, viscosity hydromechanics, self similar motion, Falkner
transformation

ABSTRACT: Two problems are treated: 1) the non-isothermal boundary layer for a
given temperature distribution over the surface of a body, and 2) the temperature
boundary layer with a linear dependence of viscosity on temperature. The Falkner
method for solution of a total system of equations

$$u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial y} = U \frac{dU}{dx} + \nu \frac{\partial^2 u}{\partial y^2} \quad (1)$$

$$\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0, \quad (2)$$

$$u \frac{\partial T}{\partial x} + v \frac{\partial T}{\partial y} = \frac{\nu}{\sigma} \frac{\partial^2 T}{\partial y^2} \quad (3)$$

Card 1/8

ACCESSION NR: AT4041813

with the boundary condition

$$\left.\begin{array}{ll} u = v = 0 & \text{при } y = 0, \\ u = U(x) & \text{при } y = \infty, \end{array}\right\} \qquad (4)$$

$$\left.\begin{array}{ll} T = T_{w}(x) & \text{при } y = 0, \\ T = T_{\infty} = \text{const} & \text{при } y = \infty, \end{array}\right\} \qquad (5)$$

for the thermal boundary layer of an incompressible liquid is generalized by introducing the new variables presented in

$$\left.\begin{array}{l} \xi = x, \quad \eta = y \sqrt{\dfrac{U}{\nu \xi}}; \quad \varphi(\xi, \eta) = \dfrac{\psi}{\sqrt{\nu \xi U}}; \\ \dfrac{T_{w} - T}{T_{w} - T_{\infty}} = \theta(\xi, \eta). \end{array}\right\} \qquad (6)$$

This results in the form

$$\dfrac{2}{\sigma} \dfrac{\partial^2 \theta}{\partial \eta^2} - 2\xi \dfrac{\partial \varphi}{\partial \eta} \cdot \dfrac{\partial \theta}{\partial \xi} + \left(\varphi + 2\xi \dfrac{\partial \varphi}{\partial \xi}\right) \dfrac{\partial \theta}{\partial \eta} = \qquad (7)$$

$$= -\alpha \varphi \dfrac{\partial \theta}{\partial \eta} + 2\beta (\theta - 1) \dfrac{\partial \varphi}{\partial \eta}.$$

Card   2/8

ACCESSION NR: AT4041813

and the boundary condition

$$0 = 0 \quad \text{при} \quad \eta = 0.$$
$$0 = 1 \quad \text{при} \quad \eta = \infty. \qquad \qquad (8)$$

The functions involved are then expanded in a MacLaurent series and resubstituted into this equation, yielding a system of ordinary differential equations.

$$\frac{2}{\sigma} \ddot{\theta}_0 + [(m+1) \varphi_n \dot{\theta}_n - 2n\dot{\varphi}_0 (\theta_0 - 1)] = 0, \qquad (9)$$
$$\frac{2}{\sigma} \ddot{\theta}_{x_0} + (m+1) \varphi_n \dot{\theta}_{x_0} - 2(n+1) \varphi_n \theta_{x_0} =$$
$$= -(3\varphi_{x_0} + m\varphi_{x_n} + \alpha'_0 \varphi_0) \dot{\theta}_n + 2n\dot{\varphi}_{x_n} \theta_0 +$$
$$+ 2\vartheta'_0 \dot{\varphi}_n \theta_n - 2n\varphi_{x_n} - 2\vartheta'_0 \dot{\varphi}_0.$$

Card 3/8

ACCESSION NR: AT4041813

The solution of this equation was previously obtained by S. Levy (Journ. Aeron. Sci. 19, N 5, 1952). By expansion in a power series, the author demonstrates that the solution of the initial equations can be sought in the form of the series

$$\varphi(x, \eta) = a_0(\eta) + p_1(x) \cdot a_1(\eta) +$$
$$+ \frac{1}{2!}[p_1^2(x) \cdot a_{11}(\eta) + p_2(x) a_2(\eta)] + \cdots \qquad (10)$$

$$\theta(x, \eta) = b_0(\eta) + p_1(x) b_1^{(1)}(\eta) + q_1(x) b_1^{(2)}(\eta) + \cdots$$
$$+ \frac{1}{2!}[p_2(x) b_2^{(1)}(\eta) + q_2(x) b_2^{(2)}(\eta) + p_1^2(x) b_{11}^{(1)}(\eta) +$$
$$+ q_1^2(x) b_{11}^{(2)}(\eta) + p_1(x) q_1(x) b_{11}^{(12)}(\eta)] + \cdots \qquad (11)$$

Card   4/8

ACCESSION NR: AT4041813

The convergence of this series was tested in the case of a "single slope" profile (i.e. $u = 1-x$), showing that the series converges more rapidly than the series given by

$$? = ?_n + x x'_0 ?_1 + \frac{x^2}{2!}(x^{''}_0 ?_{11} + a'_0 ?_2) + \dots \quad (12)$$

The conditions for the problem of the temperature boundary layer in the case of a linear dependence of viscosity on temperature are given by

$$
\left.
\begin{aligned}
u\frac{\partial u}{\partial x} + v\frac{\partial u}{\partial y} &= U\frac{dU}{dx} + \frac{\partial}{\partial y}\left(v\frac{\partial u}{\partial y}\right), \\
\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} &= 0, \\
u\frac{\partial T}{\partial x} + v\frac{\partial T}{\partial y} &= \frac{1}{\sigma}\frac{\partial}{\partial y}\left(v\frac{\partial T}{\partial y}\right)
\end{aligned}
\right\} \quad (13)
$$

with the boundary conditions

$$
\left.
\begin{aligned}
u = v = 0, \quad T = T_w = \text{const} \quad \text{при } y = 0, \\
u = U(x), \quad T = T_\infty = \text{const} \quad \text{при } y = \infty.
\end{aligned}
\right\} \quad (14)
$$

Card   5/8

ACCESSION NR: AT4041813

After substitution of variables, this is reduced to the form

$$-2\frac{\partial^2\varphi}{\partial\eta^2} + 2a\frac{\partial}{\partial\eta}\left[(1-\theta)\frac{\partial^2\varphi}{\partial\eta^2}\right] + \varphi\frac{\partial^2\varphi}{\partial\eta^2} - 2\xi\left(\frac{\partial\varphi}{\partial\eta}\cdot\frac{\partial^2\varphi}{\partial\xi\partial\eta} - \frac{\partial^2\varphi}{\partial\eta^2}\cdot\frac{\partial\varphi}{\partial\xi}\right) = \quad (15)$$

$$= a\left[2\left(\frac{\partial\varphi}{\partial\eta}\right)^2 - \varphi\frac{\partial^2\varphi}{\partial\eta^2} - 2\right],$$

$$\frac{2}{3}\frac{\partial^2\theta}{\partial\eta^2} + \frac{2a}{\sigma}\frac{\partial}{\partial\eta}\left[(1-\theta)\frac{\partial\theta}{\partial\eta}\right] - 2\xi\frac{\partial\varphi}{\partial\eta}\cdot\frac{\partial\theta}{\partial\xi} +$$

$$+ \left(\varphi + 2\xi\frac{\partial\varphi}{\partial\xi}\right)\frac{\partial\theta}{\partial\eta} = -\alpha\varphi\frac{\partial\theta}{\partial\eta}.$$

The solution of this equation is sought in the form of a power series, thus obtaining the differential equations

$$2[1 + a(1-\theta_0)]\ddot{\varphi}_n + [(m+1)\varphi_n - 2a\dot{\theta}_n]\ddot{\varphi}_n + 2m(1-\varphi_0^2) = 0, \left.\begin{array}{c}\\\\\end{array}\right\} \quad (2.10) \qquad (16)$$

$$\frac{2}{\sigma}[1 + a(1-\theta_0)]\ddot{\theta}_n + \left[(m+1)\varphi_0 - \frac{2a}{\sigma}\dot{\theta}_0\right]\dot{\theta}_n = 0;$$

Card   6/8

ACCESSION NR: AT4041813

$$2\left[1+a\left(1-\theta_0\right)\right]\ddot{\varphi}_1+\left[(m+1)\varphi_0-2a\dot{\vartheta}_0\right]\dot{\varphi}_1-2(2m+1)\dot{\varphi}_0\dot{\varphi}_1+$$
$$+(m+1)\ddot{\varphi}_0\varphi_1=2a\dot{\vartheta}_1\dot{\varphi}_0+(2a\dot{\vartheta}_1+\varphi_0)\ddot{\varphi}_0+2\dot{\varphi}_0^2-2,$$
$$\frac{2}{c}\left[1+a\left(1-\theta_n\right)\right]\ddot{\vartheta}_1+\left[(m+1)\varphi_0-\frac{4n}{3}\,_\circ\right]\dot{\theta}_1-$$
$$-\left(2\dot{\varphi}_0+\frac{2n}{c}\,\ddot{\vartheta}_0\right)\theta_1=-\left[(m+3)\varphi_1+\varphi_0\right]\dot{\theta}_0;\ \text{и т. д.}$$

(17)

with the boundary conditions

$$\begin{cases} \varphi_0=\varphi_0'=\vartheta_0=\vartheta_0'=\cdots=0 \quad \text{при } u=0 \\ \varphi_0=\vartheta_0=1 \quad \cdots \quad \text{при } u=\infty \end{cases}$$

(18)

Card 7/8

ACCESSION NR: AT4041813

These equations can be integrated on a computer. "The author is indebted to Professor L. G. Loytsyanskiy for many valuable comments." Orig. art. has: 53 equations.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Leningrad Polytechnical Institute)

SUBMITTED: 00

ENCL: 00

SUB CODE: ME

NO REF SOV: 000

OTHER: 003

Card 8/8

BUBNOV, V.A.; GRISHMANOVSKAYA, K.I.

Exact solutions of the problems of a nonisothermal boundary layer in a noncompressible fluid. Trudy LPI no.230:77-83 '64.

(MIRA 17:6)

BUBNOV, V.A.

Dynamics of waters of the frontal zone of the Kuroshio and Oyashio.
Trudy MGI 22:5-14 '60.   (MIRA 14:3)
              (Kuroshio)   (Oyashio)

BUBNOV, V.A.; KOSAREV, A.N.

Distribution of water masses in the Atlantic Ocean on the section
along the meridian 30° W. Trudy Mor. gidrofiz. inst. AN URSR 30:
70-80 '64.   (MIRA 17:11)

BUBNOV, Vitaliy Dmitriyevich; MARENKOVA, G.I., red.

[Electromechanical automatic and remote control systems]
Elektromekhanicheskie ustroistva avtomatiki i teleme-
khaniki. Moskva, Transport, 1965. 330 p.   (MIRA 18:7)

BUHNOV, V.D.

Influence of the increase of central nervous system tonus on the "goitrogenic" effect of methylthiouracil. Uch. zap. Tadzh. un. 17. Trud. Fak. est. nauk no.3:53-61 (MIRA 17:7)

Thyrotropic reaction under the conditions of increased tonus of the central nervous system by caffeine. Ibid.: 63-67

BUBNOV, V. D.

Problem of correlation between the hypophysis and thyroid according
nervosism. Doklady Akad. nauk SSSR 8 no. 2:309-312 11 Nov. 1951.
(CIML 21:3)
1. Presented by Academician A. D. Speranskiy 11 September 1951.
2. Saratov State University imeni N. G. Chernyshevskiy.

BUBNOV, V.D.

BUBNOV, V. D.

"The Role of the Cerebral Corten in the Regulation of Thyroid Gland Activity and of the Thyrotropic Function of the Hypophysis. (Relating to the Problem of Reciprocal Action Between the Hypophysis and the Thyroid Gland.(" Cand Biol Sci, Saratov U, Saratov, 1954. (RZh Biol, No 4, Feb 55)

SO: Sum. No. 631, 26 Aug 55 – Survey of Scientific and Technical Dissertation Defended at USSR Higher Educatinal Institutio s. (14)

BUBNOV, V.D.

USSR/ Medicine - Physiology

Card 1/1   Pub. 22 -, 59/63

Authors   :Bubnov, V.D.

Title   :Conditional reflex thyrotropic reaction in marmots and white mice

Periodical   :Dok. AN SSSR 99/6, 1107-1109, Dec 21, 1954

Abstract   :Experiments conducted on 34 marmots and 37 white mice showed that the
             mechanism of reaction between the hypophysis and the thyroid gland should
             not be conceived from humoral positions. This mechanism includes the nerve
             component as an essential link. The process of this reaction finds its
             reflection in the cerebral cortex as result of which conditional-reflex
             effects on the hypophysial-thyroidal complex are possible. It is explained
             that the origination of certain endocrinopathies is the result of primary
             disturbance of the functions of the cerebral cortex which in turn is re-
             flected on the normal reactions between the elements of the hypophysial-
             thyroidal complex. Four USSR references (1934-1953). Table.

Institution: The N.G. Chernishevskiy State University, Saratov
Presented by: Academician K.M. Bykov, October 19, 1954

POLYAKOV, A.A., prof.; BUBNOV, V.D., kand.veter.nauk

Disinfecting livestock premises and manure in nemathelminthiases.
Veterinariia no.12:43-44 D '63.   (MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sani-
tarii.

SHTUMPF, G.G., inzh.; BUBNOV, V.G., inzh.

Using metal rods together with regular supports in development workings. Shakht. stroi. 7 no.8:28-30 Ag '63.
(MIRA 16:11)

1. Shakhta "Kapital'naya" No. 1 tresta Osinnikiugol' Kuznetskogo basseyna.

L 29718-66   EWT(1)/EWT(m)/ETC(f)   RM/WW/JW/WE

ACC NR: AP6010199   SOURCE CODE: UR/0201/66/000/001/0005/0014.

74

AUTHOR: Nesterenko, V. B.; Bubnov, V. P.

B

ORG: Nuclear Power Institute AN BSSR (Institut yadernoy energetiki AN BSSR)

TITLE: Calculation of the thermodynamic functions of chemically reacting gases

SOURCE: AN BSSR. Vestsi. Seryya fizika-tekhnichnykh navuk, no. 1, 1966, 5-14

TOPIC TAGS: thermodynamic analysis, chemical reaction, nitrogen oxide, enthalpy, entropy, gas dissociation

ABSTRACT: It is claimed that the use of a dissociating gas in a turbine has a favorable effect by increasing the rate of heat removal, since heating of the gas is accompanied by greater absorption of heat due to dissociation. The present article presents a thermodynamic analysis based on nitrogen tetroxide, which belongs to the class of dissociating gases. A table gives values of the "effective enthalpy and entropy as a function of temperature and pressure. A second table shows results of a comparative calculation of the enthalpy and the entropy. "The authors express their thanks to Academician A. K. Krasin of the AN BSSR for

Card 1/2

L 29718-66

ACC NR: AP6010199

proposing the problem and for his interest in the work." Orig. art.
has: 35 formulas and 3 tables.

SUB CODE: 20,07/ SUBM DATE: 29Sep65/ ORIG REF: 008/ OTH REF: 010

L 29717-66   EWT(l)/EWT(m)/ETC(f)/T   RM/WW/JW/WE

ACC NR: AP6010200   SOURCE CODE: UR/0201/66/000/001/0015/0018

AUTHOR: Bubnov, V. P.; Matyunin, A. M.; Nesterenko, V. B.

ORG: Nuclear Power Institute AN BSSR (Institut yadernoy energetiki
AN BSSR)

TITLE: Thermodynamic analysis of cycles using chemically dissociating
gases as a working body

SOURCE: AN BSSR. Vestsi. Seryya fizika-tekhnichnykh navuk, no. 1,
1966, 15-18

TOPIC TAGS: thermodynamic analysis, chemical reaction, gas turbine,
nitrogen oxide

ABSTRACT: The article gives a thermodynamic analysis of a cycle with
compression in the liquid phase (gas-liquid cycle) using a chemically
reacting gas as the working body in a turbine. The investigation was
based on nitrogen tetroxide since more data are available on its
properties. The article gives a schematic diagram of the turbine cycle.
The calculations show that use of chemically dissociating gases as
working bodies in the range of temperatures and pressures considered
$(T = 823-1023°K, P = 40-90 \text{ atm})$ makes it possible to achieve
efficiencies for the cycle which range from 32 to 49% of the absolute

Card 1/2

L 29717-66

ACC NR: AP6010200   /

values. Using reacting gases as the working body, an increase in the
initial temperature and pressure parameters results in an increase in
the efficiency coefficient; this cannot be said in regard to cycles
employing steam as the working body. The article concludes that the
use of such dissociating gases shows great industrial promise and is
worthy of further theoretical and experimental investigation. "The
authors of the article express their thanks to Academician A. K. Krasin
of the AN BSSR for proposing the subject of the investigation and for
his interest in the work." Orig. art. has: 5 figures.

SUB CODE: 20,07 / SUBM DATE: 29Sep65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 CU

ACC NR: AP6033071   SOURCE CODE: UR/0201/66/000/003/0129/0134

AUTHOR: Bubnov, V. P.; Gusarov, V. N.; Kuleshov, G. G.; Nesterenko,
V. B.; Timofeyev, B. D.

ORG: IYaE AN BSSR

TITLE: Experimental study of P-V-T properties of dissociating
nitrogen tetroxide

SOURCE: AN BSSR. Vestsi. Seryya fizika-tekhnichnykh navuk, no. 3,
1966, 129-134

TOPIC TAGS: nitrogen tetroxide, dissociation, P V T property,
specific weight

ABSTRACT: P-V-T properties of dissociating nitrogen tetroxide have
been determined at 420—720C and 25—60 kg/cm^2. The study was under-
taken because of the absence of literature data on these properties
at higher temperatures and pressures. The experimental and calculation
procedures are described in the source. The results of the study are
given in Table 1. These results are in good agreement (difference ± 2%)
with those obtained by V. C. Sch

Card 1/4

ACC NR: AP6033071

Table 1. Dependence of $Z_{eff} = P/\gamma RT$ and of the specific weight (γ) of dissociating nitrogen tetroxide on temperature and pressure

T, °K	P, kg/cm²							
	25	30	35	40	45	50	55	60
	Z_{eff}							
420	1,615	1,510	1,404	1,293	1,189	1,080	0,982	0,867
430	1,706	1,624	1,535	1,435	1,330	1,228	1,144	1,040
440	1,803	1,721	1,632	1,540	1,448	1,358	1,280	1,179
450	1,879	1,796	1,717	1,636	1,555	1,475	1,395	1,309
460	1,941	1,872	1,796	1,723	1,647	1,572	1,501	1,424
470	2,002	1,942	1,867	1,799	1,730	1,662	1,592	1,522
480	2,056	1,993	1,928	1,868	1,803	1,743	1,686	1,628
490	2,098	2,043	1,985	1,928	1,870	1,816	1,758	1,698
500	2,135	2,084	2,029	1,974	1,918	1,871	1,814	1,759
510	2,166	2,117	2,062	2,016	1,966	1,917	1,864	1,812
520	2,187	2,142	2,093	2,042	2,993	1,946	1,898	1,851
530	2,211	2,170	2,120	2,069	2,023	1,979	1,930	1,888
540	2,230	2,187	2,142	2,094	2,050	2,004	1,957	1,918
550	2,248	2,211	2,167	2,117	2,071	2,025	1,981	1,939
560	2,268	2,233	2,182	2,136	2,091	2,045	2,001	1,963
570	2,279	2,244	2,202	2,151	2,106	2,066	2,021	1,983
580	2,293	2,259	2,217	2,166	2,124	2,079	2,042	2,001
590	2,307	2,269	2,230	2,179	2,139	2,096	2,061	2,020
600	2,318	2,279	2,244	2,192	2,152	2,111	2,075	2,036
610	2,330	2,287	2,253	2,201	2,157	2,124	2,090	2,054
620	2,338	2,296	2,259	2,210	2,168	2,136	2,101	2,067
630	2,349	2,309	2,267	2,219	2,183	2,149	2,119	2,086
640	2,354	2,317	2,274	2,227	2,194	2,161	2,130	2,096
650	2,361	2,326	2,282	2,244	2,204	2,167	2,140	2,106

Card 2/4

Table 1. (Cont.)

660	2,368	2,331	2,289	2,251	2,213	2,179	2,148	2,114
670	2,372	2,336	2,296	2,259	2,223	2,186	2,156	2,125
680	2,375	2,341	2,304	2,268	2,233	2,198	2,164	2,135
690	2,378	2,346	2,311	2,272	2,243	2,206	2,172	2,144
700	2,381	2,351	2,318	2,281	2,250	2,213	2,181	2,152
710	2,383	2,357	2,324	2,290	2,257	2,220	2,189	2,160
720	2,386	2,362	2,330	2,296	2,264	2,226	2,197	2,168

420	40,0	51,3	64,4	79,9	97,8	119,6	144,7	178,8
430	37,0	46,6	57,5	70,3	85,4	102,7	121,3	145,6
440	34,2	43,0	52,9	64,0	76,6	90,8	108,0	125,5
450	32,1	40,3	49,2	59,0	69,8	81,7	95,1	110,5
460	30,4	37,8	46,0	54,8	64,5	75,0	86,4	99,4
470	28,8	35,7	43,3	51,3	60,0	69,5	79,8	91,0
480	27,5	34,0	41,0	48,4	56,4	64,8	73,7	83,3
490	26,4	32,6	39,0	45,9	53,3	61,0	69,3	78,2
500	25,4	31,2	37,4	44,0	50,9	58,0	65,8	74,0
510	24,6	30,2	36,1	42,2	48,7	55,5	62,8	70,4
520	23,8	29,2	34,9	40,9	47,1	53,6	60,5	67,6
530	23,2	28,3	33,8	39,6	45,5	51,7	58,3	65,1
540	22,5	27,6	32,8	38,4	44,1	50,1	56,5	62,9
550	21,9	26,8	31,9	37,3	42,9	48,7	54,8	61,0
560	21,4	26,0	31,1	36,3	41,7	47,4	53,2	59,2
570	20,9	25,4	30,3	35,4	40,7	46,1	51,8	57,6
580	20,5	24,8	29,5	34,5	39,6	45,0	50,4	56,1
590	19,9	24,3	28,9	33,8	38,7	43,9	49,1	54,6
600	19,5	23,8	28,2	33,0	37,8	42,8	47,9	53,3
610	19,1	23,3	27,6	32,3	37,0	41,9	46,8	52,0
620	18,7	22,8	27,1	31,7	36,3	41,0	45,8	50,8
630	18,3	22,4	26,6	31,0	35,5	40,1	44,7	49,5
640	18,0	22,0	26,1	30,5	34,8	39,2	43,8	48,5

Card 3/4

ACC NR: AP6033071

Table 1. (Cont.)

650	17,7	21,5	25,6	29,8	34,1	38,5	42,9	47,6
660	17,4	21,2	25,2	29,2	33,4	37,7	42,1	46,7
670	17,1	20,8	24,7	28,7	32,8	37,0	41,3	45,7
680	16,8	20,4	24,2	28,1	32,2	36,3	40,6	44,8
690	16,5	20,1	23,8	27,7	31,6	35,6	39,8	44,0
700	16,3	19,8	23,4	27,2	31,0	35,0	39,1	43,2
710	16,0	19,5	23,0	26,7	30,5	34,4	38,4	42,5
720	15,8	19,1	22,6	26,2	30,0	33,9	37,7	41,7

with those obtained by W. G. Schlinger and B. H. Sage (in the range of temperatures and pressures studied by these authors). Orig. art. has 1 table.

SUB CODE: 07/   SUBM DATE: 09Mar66/   ORIG REF: 006/   ORIG REF: 004

Card 4/4

AUTHOR: Nesterenko, V. B.; Bazhin, M. A.; Bubnov, V. P.

ORG: IYaE AN BSSR

TITLE: Calculation of the thermodynamic properties of dissociations nitrogen tetroxide taking into account nonideality

TOPIC TAGS: nitrogen tetroxide, nitrogen tetroxide dissociation, entropy, enthalpy, THERMODYNAMIC FUNCTION

ABSTRACT: This study was undertaken because of the·lack of experimental data on the enthalpy of dissociating nitrogen tetroxide. A calculation of the entropy (S) and enthalpy (I) of dissociating N_2O_4

$$N_2O_4 \rightleftarrows 2NO_2 \rightleftarrows 2NO + O_2$$
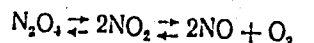
was performed in the 300—1500K and 1—140 at range, taking into account deviation of the reaching N_2O_4 from ideal behavior. The calculation was carried out on the basis of general thermodynamic functions of the thermodynamic theory of empirical corrections and of generalized tables. The calculated S and I values were used for plotting I--S and T--S diagrams (see Fig. 1 and 2, respectively). Orig. art. has: 2 figures.   [WA-77]
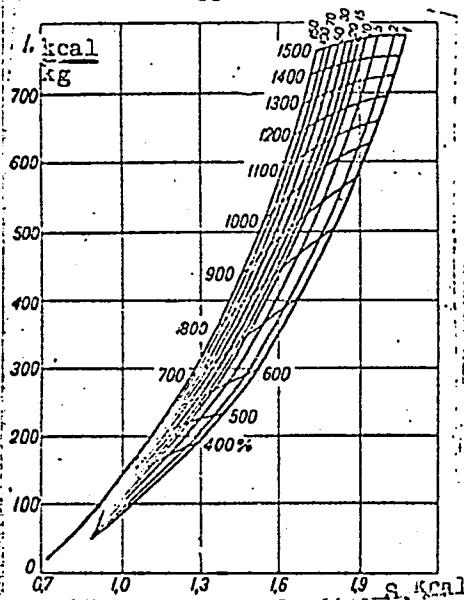
Card 1/2

ACC NR: AP6033066

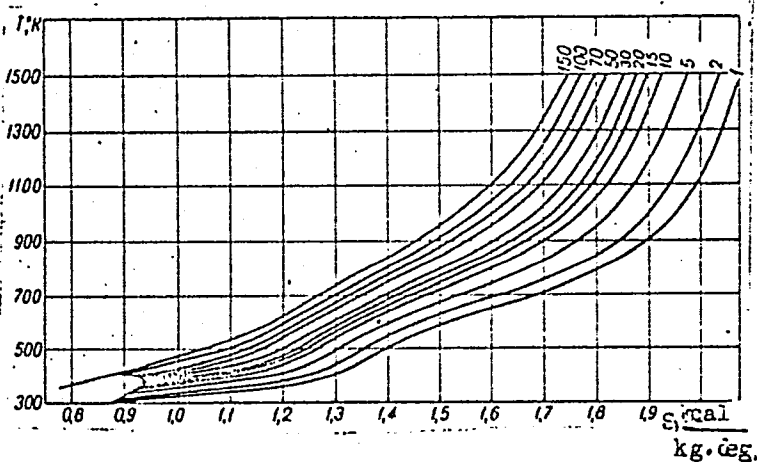Fig. 1. I--S diagram of the dissociating system $N_2O_4 \rightleftarrows 2NO_2 \rightleftarrows 2NO + O_2$

Fig. 2. T--S diagram of the dissociating system $N_2O_4 \rightleftarrows 2NO_2 \rightleftarrows 2NO + O_2$

SUB CODE: 20/ SUBM DATE: 23Mar66/ ORIG REF: 003/ OTH REF: 010

Card 2/2

ACC NR: AP7002877   (A,N)   SOURCE CODE: UR/0201/66/000/004/0023/0026

AUTHOR: Bazhin, M. A.; Bubnov, V. P.; Nesterenko, V. B.

ORG: Institute of Nuclear Power Engineering, AN BSSR (Institut yadernoy energetiki AN BSSR)

TITLE: Calculation of regeneration in cycles using working media with variable specific heat

SOURCE: AN BSSR. Vestsi. Seryya fizika-tekhnichnykh navuk, no. 4, 1966, 23-26

TOPIC TAGS: gas turbine   , gas turbine fuel, thermodynamic cycle, specific heat, chemical reaction, turbine regenerator, heat exchange

ABSTRACT: In view of recent proposals to use chemically reacting gas systems as working media in gas turbines, the authors have continued their earlier research on regenerative turbine cycles (Vestsi AN BSSR, ser. fiz.-tekhn. navuk, no. 1, 1966), where they have shown that regeneration of heat can make a major contribution to the efficiency of the system. Calculations are presented for both uniflow and counter-flow systems, with account taken of the variation in the specific heat of the gas as a result of the chemical reactions that take place in it. The calculations are made on the basis of the heat balance equation for the heating and heated sides of the regenerating equipment, with allowance for the fact that in the case of variable specific heat the temperature differential within the system (relative to one of the terminal points of the regenerator) can occur not only on the ends of the interval

Card 1/2

ACC NR: AP7002877

of variation of the independent variable (as is the case for gases with constant specific heat) but also inside the interval. The conditions under which maxima occur inside the interval are determined for both the uniflow and counterflow cases. The calculations demonstrate that allowance for the variable specific heat alters the heat-balance calculations significantly. Orig. art. has: 1 figure and 18 formulas.

SUB CODE: 20, 13/   SUBM DATE: 23Jun66/   ORIG REF: 004

Card 2/2

BURTSEVA, L.N.; LEVIN, V.I.; GOLUTVINA, M.M.; BUBNOV, V.S.

Separation of radioactive manganese without a carrier from
deuteron irradiated chromium. Radiokhimiia 1 no.2:231-235
'59.   (MIRA 12:8)
    (Manganese--Isotopes) (Chromium) (Deuterons)

BUBNOV, V.S.; KEYRIM-MARKUS, I.B.; SMIRNOVA, T.N.

Use of potassium bromide crystals for the dosimetry of gamma
radiation. Med.rad. 5 no.3:61-64 '60.   (MIRA 13:12)
    (GAMMA RAYS—MEASUREMENT)   (POTASSIUM BROMIDE)

38675

S/079/62/032/006/002/006
D202/D304

$S.2410$

AUTHORS: Mikhaylov, B. M. and Bubnov, Ya. N.

TITLE: Organic compounds of boron. XCVIII. Mechanism of for-
                mation of B-trialkylborazoles from boron trialkyls
                and ammonia

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 6, 1962, 1969-
                1974

TEXT: The authors showed that the mechanism of formation of B-tri-
alkylborazoles is different from that described by Wiberg and
Hertwig who, using trimethylboron as starting material, concluded
that trialkylborazoles are formed only by elimination of the cor-
responding paraffins. The authors used the following compounds:
tri-$\underline{n}$-butylborane + NH_3 and $\underline{n}$-butyl ester of di-$\underline{n}$-butylthioboric

acid + CH_3NH_2 and obtained di-$\underline{n}$-butyl(amino)borane and di-$\underline{n}$-butyl-
(methylamino)borane respectively. Analysis of the reaction products
has shown that dialkyl(amino)boranes were formed with elimination

Card 1/2

Organic compounds of boron. ...

S/079/62/032/006/002/006
D202/D304

of corresponding olefins, hydrogen and of very small amounts of paraffin. The authors converted di-n-butyl(amino)borane and di-iso-amyl(amino)borane into B-tri-n-butylborazole and B-tri-iso-amylborazole respectively, by heating. The authors conclude that dialkyl (amino) borates are converted into B-tri-alkylborazoles in two ways: 1) By their symmetrization and formation of trialkyl-boranes and alkyl (diamino) boranes which, by trimerization with elimination of NH_3, give tri-alkylborazoles, or 2) by elimination of the olefin and subsequent trimerization of alkyl (amino) borane into B-trialkylborazole.

SUBMITTED: June 5, 1961

Card 2/2

BUBNOV, Ye.S.

Equipment manufactured in Sweden for core drilling geological exploratory boreholes. Razved.i okhr.nedr 22 no.5:53-62 My '56.   (MLRA 9:9)

1. Ministerstvo geologii i okhrany nedr.
        (Sweden--Boring machinery)

BUBNOV, Ye. S.

Data on boring equipment developed in Czechoslovakia for use in geological prospecting. Razved.i okh.nedr 23 no.5:59-61 My '57.
(MIRA 10:8)

1.Vsesoyuznyy institut mineral'nogo syr'ya.
(Czechoslovakia--Boring machinery)

BUBNOV, Ye.S.

ODINTSOV, Georgiy Nikolayevich; SHTODA, Sergey Pavlovich; LYUBARSKIY, Aleksey Leonidovich; BUBNOV, Ya.S., red.; BOROVLEV, V.A., red., SERGEYEVA, N.A., red.izdatel'stva; PEN'KOVA, S.A., tekhn.red.

[The SBU-150-ZIV mobile boring apparatus; description of and directions for operation] Samokhodnaia burovaia ustanovka SBU-150-ZIV; opisanie i rukovodstvo po kspluatatsii. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1957. 95 p.(MIRA 10:12)
(Boring machinery)

BUBNOV YE S

BUBNOV, Ye.S.

Some data on core drilling rigs made in Japan. Razved. i okh. nedr
23 no.9:55-57 S '57.   (MIRA 10:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii i stan-
dartizatsii.

                (Japan--Boring machinery)

BUBNOV, Ye.S., red.; ANOKHINA, L.A., red.; KRYNOCHKINA, K.V., tekhn.red.

[Core drilling of geological test holes with air] Burenie
geologorazvedochnykh skvazhin kolonkovym sposobom s ochistkoi
zaboia vozdukhom. Pod obshchei red. E.S.Bubnova. Moskva, Gos.
nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr, 1958.
107 p.   (MIRA 12:5)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr.
Otdel nauchno-tekhnicheskoy informatsii.
                        (Boring)

Bo Dnov, Ye.S

AUTHORS: Bubnov, Ye.S., Medvedev, N.V.   132-58-4-13/17

TITLE: The Drilling Unit V-35 for Sinking Geological Test Wells
              to a Depth of 3,000 m (Burovoy agregat V-35 dlya prokhodki
              geologorazvedochnykh skvazhin glubinoy 3,000 m)

PERIODICAL: Razvedka i Okhrana Nedr, 1958, Nr 4, pp 51-56 (USSR)

ABSTRACT: This is a detailed description of the drilling unit V-35
              constructed by the Swedish firm Krelius.

ASSOCIATION: (VIMS) Ministerstvo Geologii i Okhrany Nedr SSSR)
              (VIMS) (USSR Ministry of Geology and Conservation of Mineral
              Resources.

AVAILABLE: Library of Congress

Card 1/1   1. Drilling machines

Bubnov, Ye. S.

132-58-4-14/17

AUTHORS: Vozdvizhenskiy, B.I., Shamshev, F.A., Meyerson, Ye.G., Bubnov
Ye.S., Medvedev, N.V.

TITLE: On the Question of the Selection of a Motor for Test Well
Boring (K voprosu o vybore zaboynogo dvigatelya dlya raz-
vedochnogo bureniya) VOL.24

PERIODICAL: Razvedka i Okhrana Nedr, Nr 4, 1958, pp 57-59 (USSR)

ABSTRACT: This article is written in support of the point of view
expressed by N.G. Zhilkin in his booklet "The Motor for
Test Well-Boring" which was critizised by M.T. Gusman and
A.A. Minin in the Periodical "Neftyanoye khozyaystvo", 1957,
Nr 12, pp 66-68. The author of the booklet suggested the
use of the electric perforator on tubes and the critics
prefer the turbo-perforator of a small diameter or the
electric perforator on ropes.

AVAILABLE: Library of Congress
Card 1/1   1. Drilling machines--Equipment

GRAF, Leonid Eduardovich; BUBNOV, Ye.S., red.; DOLGIKH, N.S., red.izd-va;
KARASEV, V.A., tekhn.red.

[New equipment for test drilling used in foreign countries]
Novosti tekhniki geologorazvedochnogo bureniia za rubezhom.
Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i okhrane
nedr, 1959. 21 p.   (MIRA 13:5)
            (United States--Boring machinery)

TURCHUK, A.A.; MEDVEDEV, N.V.; ORLOV, L.N.; TITOV, P.S.; BUBNOV, Ye.S., red.; FEDOROVA, L.N., red.izd-va; BYKOVA, V.V., tekhn.red.

[ZIF-650 A boring machine unit] Burovoi agregat ZIF-650 A. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geologii i okhrane nedr, 1959. 133 p. (MIRA 13:4)
(Boring machinery)

BUBNOV, Ye.S.; MEDVEDEV, N.V.

New Swedish deep test drilling rigs. Razved. i okh. nedr
26 no.2: 55-62 Feb. '60.   (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo
syr'ya. (for Bubnov). 2. Ministerstvo geologii i okrany nedr
SSSR (for Medvedev).
              (Sweden--Boring machinery)

ANDRIANOV, Nikolay Ivanovich; BUBNOV, Yevgeniy Sergeyevich; GNEVUSHEV,
    Mikhail Andreyevich; IOANNESYAN, Rollen Arsen'yevich; LITVINOV,
    Nikolay Nikolayevich; MEYERSON, Yevgeniy Grigor'yevich; MINDLIN,
    Yakov Borisovich; ROMANTSEV, Yakov Antonovich; ALEKSIN, A.G., red.;
    KAESHKOVA, S.M., vedushchiy red.; POLOSINA, A.S., tekhn. red.

[Diamond drilling] Almaznoe burenie. Moskva, Gos. nauchno-tekhn.
izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 170 p. (MIRA 14:9)
    (Boring)   (Diamonds, Industrial)

SOLTYSH, V.M.; MEYERSON, Ye.G., BUBNOV, Ya.S.; VOZDVIZHENSKIY, B.I.,
prof., red.; SERGEYEVA, N.A., red. izd-va; GUROVA, O.A., tekhn.
red.

[Handbook on diamond drilling of test holes] Rukovodstvo po
almaznomu bureniiu geologorazvedochnykh skvazhin. Moskva,
Gosgeoltekhizdat, 1963. 207 p.   (MIRA 16:6)
                    (BORING)

FILATOV, B.S.; MAKURIN, N.S.; GAO LU-LIN' [Kao Lu-lin]; BAZHENOV,
V.S.; BUBNOV, Ye.S., red.

[Drilling wells using surfactants and aerated liquid]
Burenie skvazhin s primeneniem poverkhnostno-aktivnykh
veshchestv i aerirovannoi zhidkosti. Moskva, 1962. 48 p.
(MIRA 17:4)
1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okh-
rany nedr.

BUBNOV, Ye.S.

Methods for the further increase of the growth of production
and the reduction of the cost of prospect drilling. Razved.
i okh. nedr 29 no.6:26-32 Je '63.   (MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut
mineral'nogo syr'ya.

BUBNOV, Ye.S.; KARDYSH, V.G.; MURZAKOV, B.V.

Modern methods for sinking in moraine sediments and rocks analogous according to drilling conditions. Razved. i okh. nedr 31 no.7:26-33 Jl '65.

(MIRA 18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya, Moskva (for Bubnov).

Bu BNov, Yu. N.

BUBNOV, Yu.N., arkhitekt

Experience in building apartment houses with the services of the local population. Biul.stroi.tekh. 14 no.6:6-10 Je '57.

1. Gor'kovskiy Gorproyekt.

(MIRA 10:11)

(Gorkiy--Apartment houses)

N_1

BUBNOV, Yu., arkh.

Designing and planning for noncontractual housing construction.
Zhil.stroi. no.7:19-21 '58.   (MIRA 12:6)
       (Apartment houses) (Architecture—Designs and plans)

BUBNOV, Yu.N.

Noncontractual construction of apartment houses by the inhabitants
of Gorkiy. Gor. khoz. Mosk. 32 no.5:14-17 My '58.   (MIRA 11:5)

1.Direktor instituta "Girpogor'kovstroy."
                    (Gorkiy--Apartment houses)

AUTHORS: Reutov, O. A., Smolina, T. A.,   SOV/156-58-2-30/48
               Wu Yang-ch'i, Bubnov, Yu. N.

TITLE: Isotopic Exchange of Several Organomercury Salts and
               Mercury Haloid Labelled by Hg^{203}(Izotopnyy obmen nekotorykh
               rtutnoorganicheskikh soley s galoidnoy rtut'yu, mechenney Hg^{203})

ABSTRACT: In continuation of previous papers the authors investigated
               the interaction between the mercury mentioned in the title
               and: α-mercury bromo-cyclohexane, the ethyl- and 1-methyl-
               ether of the α-mercury bromo-phenyl acetic acid, 3-mercury
               bromo-camphor, 3-benzyl-3-mercury bromo camphor, 1-mercury
               chloro-camphenylon, 2-mercury bromo camphane, and n.butyl-
               mercury bromide. The organomercury salts which are (except
               1-mercury chloro-camphenylon) exo-compounds, react under
               mild conditions with mercury haloid. From the results (Table 1)
               appears that the reactivity of the investigated organomercury
               salts is reduced with respect to mercury haloid in a certain
Card 1/3   order (scheme given). 1-mercury bromo-camphenylon, 2-mercury

Isotopic Exchange of Several Organomercury Salts and   SOV/156-58-2-3o/48
Mercury Haloid Labelled by Hg^{203}

bromo camphane, and n.butyl-mercury bromide do not enter
into the reaction of the isotopic exchange under these
conditions. When the authors compared the results obtained
by the reactions in benzene and dioxane to those in acetone
they found that admixtures are contained in acetone which
are not removed in the case of a normal dehydration. They are
assumed to be responsible for the considerable fluctuations
of the rate of reaction observed in acetone. The authors
were able to prove that the reaction of the isotopic exchange
is considerably accelerated by acids as well as by bases. It
is possible that the bases lead to a solvation of the mercury
atom and thus weaken the C—Hg bond. The influence of acids
is probably specific only for the cases of the α-mercurized
oxo-compounds. The hydrogen of the acid probably influences
the oxygen of the carbonyl group. This weakens the C—Hg bond.
Apparently the isotopic exchange in question is a bimolecular
reaction of the electrophilic substitution at the saturated
carbon atom ($S_E 2$). Further investigations in this respect

Card 2/3   are necessary. An experimental part follows. There are 1 table

Isotopic Exchange of Several Organomercury Salts and   SOV/156-58-2-30/48
Mercury Haloid Labelled by Hg^{203}

and 1 reference,   which is Soviet.

ASSOCIATION: Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo
               universiteta im.M.V.Lomonosova(Chair of Organic Chemistry
               of the Moscow State University imeni M.V.Lomonosov)

SUBMITTED: October 28, 1957

Card 3/3

5(3)   SOV/62-59-1-32/38
AUTHORS: Mikhaylov, B. M., Bubnov, Yu. N.

TITLE: Synthesis of the Esters of Dialkyl Thioboric Acids and
                Their Transformations (Sintez efirov dialkiltiobornykh
                kislot i ikh prevrashcheniya)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
                1959, Nr 1, pp 172 - 173 (USSR)

ABSTRACT: In this communication the authors report on the investiga-
                tion of the reactivity of boro trialkyls with sulfur. The
                experiments have shown that tri-n-propyl boron or tri-n-
                butyl boron react with sulfur on heating (145°) and
                accordingly form n-propyl esters of the di-n-propyl thio-
                boric acid as well as n-butyl esters of the di-n-butyl
                thioboric acid. The esters of dialkyl thioboric acid are
                highly reactive compounds. By the action of water they are
                hydrolized in dialkyl boric acids. By the reaction of alcohol
                they are transformed into esters of the dialkyl boric acids.
                Esters of dialkyl thioboric acids readily react with amines
                and are transformed into N-substituted dialkyl boron amines.
Card 1/2   By the action of hexamethylene diamine they are transformed

Synthesis of the Esters of Dialkyl Thioboric Acids and   SOV/62-59-1-32/38
Their Transformations

into N,N'(didialkyl-boryl)-1,6-diamino-hexanes. With ammonia
they form dialkyl boron amines. By the action of hydrazine
the thioesters are transformed into 1,2-di-(dialkyl-boryl)
hydrazines. There are 4 references.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR (Institute of Organic Chemistry imeni N. D. Ze-
linskiy of the Academy of Sciences, USSR)

SUBMITTED: June 17, 1958

Card 2/2

5(3)

AUTHORS: Mikhaylov, B. M., Bubnov, Yu. N.   SOV/79-29-5-51/75

TITLE: Boron Organic Compounds (Bororganicheskiye soyedineniya).
               XXXVIII. The Reaction of Boron Trialkyls With Sulphur.
               Synthesis of Esters of the Dialkyl-Thio-Boric Acids
               (XXXVIII.Reaktsiya bortrialkilov s seroy. Sintez efirov
               dialkiltiotornykh kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1648-1650
               (USSR)

ABSTRACT: The authors investigated the problem, to what extent there
               is a parallel between the reaction of boron trialkyls with
               sulphur and with oxygen. Experiments showed that tri-n.-
               propyl boron and tri-n-butyl boron with sulphur on heating
               up to 145° supply the corresponding di-esters of thioboric
               acid: $R_3B + S \longrightarrow R_2BSR$. In analogy with the reaction with
               oxygen trialkyl boron probably forms first a molecular
               compound with sulphur, which then enters reaction with a
               second molecule of trialkyl boron: $R_3B + S_n \rightleftharpoons R_3B \longleftarrow S_n$;

Card 1/3 $R_3B \longleftarrow S_n + R_3B = 2R_2BSR + S_{n-2}$. Publications hitherto

Boron Organic Compounds. XXXVIII. The Reaction of   SOV/79-29-5-51/75
Boron Trialkyls With Sulphur. Synthesis of Esters of the Dialkyl-Thio-
Boric Acids

                    revealed only the methyl ester of dimethyl thioboric acid,
                    which however was obtained from the reaction between methyl
                    mercaptan and tetramethyl diborane or dimethyl boron bromide
                    (Refs 2,3). Esters of dialkyl thioboric acids are uneffected
                    by temperature changes and very reactive. In water they
                    hydrolyze to dialkyl boric acids; under the effect of alcohols
                    they form esters of dialkyl boric acids. Thus, methyl ester
                    of di-n.propylboric acid was obtained from the n.-propyl ester
                    of di-n.-propyl thioboric acid and methyl alcohol. Esters of
                    dialkyl thioboric acids react with amines under formation of
                    dialkyl boramine substituted at the nitrogen. In this way, the
                    authors obtained di-n.-propyl isobutyl amino boron and di-n.-
                    butyl phenyl amino boron. The experimental   contains the
                    exact description of the reactions mentioned as well as the
                    analytical and physical data of the substances obtained.
                    There are 3 references.

Card 2/3

Boron Organic Compounds. XXXVIII. The Reaction of   SOV/79-29-5-51/75
Boron Trialkyls With Sulphur. Synthesis of Esters of the
Dialkyl-Thio-Boric Acids

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute
                of Organic Chemistry of the Academy of Sciences of the USSR)

SUBMITTED: April 9, 1958

Card 3/3

5(2,3)

AUTHORS: Mikhaylov, B. M., Vaver, V. A., Bubnov, Yu. N.

TITLE: Organoboron Compounds (Bororganicheskiye soyedineniya). Reactions Between Boron Trialkyls and Compounds Containing Mobile Hydrogen (Reaktsii bortrialkilov s soyedineniyami, soderzhashchimi podvizhnyy vodorod)

ABSTRACT: The ability of aliphatic boron compounds to undergo the reactions mentioned in the subtitle is very little investigated (Refs 1-6). Triallyl boron possesses, however, an extraordinary sensitivity to the reagents mentioned in the subtitle. It reacts with water, alcohols and amines, even at room temperature. One or two allyl radicals are replaced by corresponding groups. For these reasons, the subject mentioned in the subtitle was of considerable interest. The influence of the nature of initial substances on the rupturing process of the boron-carbon compound could be established. The authors studied the reactions between tri-n-propyl-, tri-isopropyl-tri-n-butyl, tri-isobutyl- and tri-iso-amyl-boron on one hand, and water, alcohol, phenol, amines and

Card 1/3

Organoboron Compounds. Reactions Between Boron Trialkyls SOV/2o-126-3-32/69
and Compounds Containing Mobile Hydrogen

mercaptans on the other hand. It has been found that higher
boron trialkyls react energetically with water at 160-170°.
Dialkyl boric acids (I) are formed which are isolated in the
distillation as acid anhydrides with yields of 65-71% (Table 1).
The reaction is accompanied by the formation of olefine hydro-
carbons and hydrogen as well as saturated hydrocarbons (see
Scheme). The occurring relative hydrocarbon- and hydrogen
quantities depend on the test conditions. Boron trialkyls re-
act under the same conditions with aliphatic alcohols or with
phenol. Thus, they form alkyl or phenyl ester of the dialkyl
boric acids (II) with yields of 65-80%, as well as saturated
and olefine hydrocarbons and hydrogen. These reactions, as well
as those of the aliphatic and aromatic amines (III), finally
those of the mercaptans (IV), proceed in stages: they run
through a stage of complex compounds of boron trialkyls and
oxygen-, nitrogen- and sulphur-addenda (V). These compounds
(V)(1) undergo two kinds of trunsformations: a) the complexes
decompose into saturated hydrocarbons and corresponding organoboron
compounds (VI)(2). It seems here that a proton is removed from
the heterogeneously bound atom, and the alkyl group is split

Card 2/3

Organoboron Compounds. Reactions Between Boron Trialkyls SOV/2o-126-3-32/69
and Compounds Containing Mobile Hydrogen

off as an anion from the boron atom. b) Olefine hydrocarbon
and hydrogen are eliminated and formed (VI) according to
scheme (3). This process is most distinctly marked at the
interaction of the boron trialkyls with water, alcohols and
amines. The transformation of complexes (V) according to scheme
(3) is also possible with the formation of dialkyl boranes (VII)
which then separate a hydrogen molecule. The above reactions are
simple and easy methods of producing the mentioned compounds.
There are 1 table and 10 references, 2 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk
SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy
of the Academy of Sciences, USSR)

PRESENTED: February 9, 1959, by B. A. Kazanskiy, Academician

SUBMITTED: February 9, 1959

Card 3/3

5(2,3)

AUTHORS: Mikhaylov, B. M., Bubnov, Yu. N.

TITLE: Dialkylthioboric Acids and Borocyandialkyls

ABSTRACT: The esters of the acids mentioned in the title which the authors developed by the influence of sulphur (Ref 1) or n-butyl-mercaptan (Ref 2) on borotrialkyls, are very reactive. Their reactivity exceeds that of their oxygen analogues. In the course of further investigations it was proved that thio-esters not only react with amines, but also with H_2S and HCN.

If thioester, heated to 14o-18o° permeates H_2S, the acids mentioned in the title and mercaptan will develop and can be distilled according to their development. This is the way the authors produced di-n-butyl-, di-n-propyl- and di-isoamyl-thioboric acid from the n-butyl esters of the mentioned acids. These are the first representatives of this type of organic boric compounds. The properties and further transformations of thio acids are described. N-butyl-esters of the acids

Card 1/3

Dialkylthioboric Acids and Borocyandialkyls   SOV/20-127-3-25/71

mentioned in the title, react with HCN at low temperature
or with slight heating, and produce the alkyls (III) mentioned
in the title. They are nitriles of unknown dialkyl-borio-
carboxylic acids. If the ethereal solutions of n-butylester
of Di-n-butyl-boric acid is mixed with HCN, heating occurs.
A jellied precipitation develops which at first is colorless.
This indicates the formation of complex compounds (II) in the
first stage of the reaction. They soon change again. From the
cryoscopic molecular weight, determined by means of benzene,
one can see that they are associated up to a certain extent.
A description is given of the physical properties of the above
mentioned substances produced in this connection. Borocyandi-
alkyls react with alcohols, if heated. At the same time esters
of dialkylthioboric acids and HCN develop. Crystalline complex
compounds (IV), inconstant if exposed to air, develop under
the influence of amines on the mentioned radicals. Finally
the authors mention the known cyanogen derivatives of the
quadrivalent negative boron (Ref 4) and denote that the boro-
cyandialkyls, as well as their complex compounds, together
with amines, are the first representatives of the complex
Card 2/3   organic compounds of trivalent boron, containing a cyanogen

Dialkylthioboric Acids and Borocyandialkyls   SOV/2o-127-3-25/71

         group. There are 5 references, 3 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
            nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelins-
            kiy of the Academy of Sciences, USSR)

PRESENTED: April 3, 1959, by B. A. Kazanskiy, Academician

SUBMITTED: March 31, 1959

Card 3/3

84859

S/062/60/000/010/013/018
B015/B064

/I. 1250

AUTHORS: Mikhaylov, B. M. and Bubnov, Yu. N.

TITLE: Catalytic Effect of Mercaptanes Upon the Conversion of
              Boron Trialkyls Under the Action of Ammonia, Amines,
              and Alcohols

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh
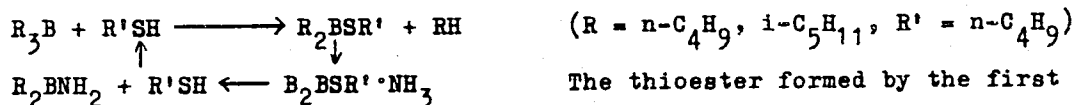   nauk, 1960, No. 10, pp. 1872 - 1873

TEXT: The smooth course of reaction between thioesters and ammonia al-
lows to synthesize any dialkyl (amino) boron compounds (R_2BNH_2) from
boron trialkyls, with mercaptane being used in quantities that cause
catalytic effects. On introducing ammonia into normal boron tributyl or
triisoamyl boron to which approximately 1/25 equivalent of normal butyl
mercaptane had been added, normal dibutyl (amino) boron and diisoamyl
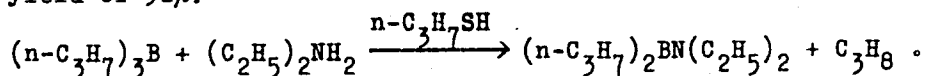(amino) boron were obtained in yields of 70-75%:

Card 1/3

84859

Catalytic Effect of Mercaptanes Upon the   S/062/60/000/010/013/018
Conversion of Boron Trialkyls Under the   B015/B064
Action of Ammonia, Amines, and Alcohols

$$R_3B + R'SH \longrightarrow R_2BSR' + RH \qquad (R = n\text{-}C_4H_9,\ i\text{-}C_5H_{11},\ R' = n\text{-}C_4H_9)$$

$$R_2BNH_2 + R'SH \longleftarrow B_2BSR' \cdot NH_3 \qquad \text{The thioester formed by the first}$$

reaction regenerates mercaptane when reacting with ammonia; subsequently,
mercaptane reacts with boron trialkyl, and this process is repeated un-
til boron trialkyl is entirely consumed . Thus, it is also possible to
synthesize N-substituted dialkyl (amino) boron compounds and esters of
dialkyl boric acids. By adding diethyl amine to n-tripropyl boron (with
n-propyl mercaptane), n-dipropyl (diethyl amino) boron is obtained in a
yield of 92%:

$$(n\text{-}C_3H_7)_3B + (C_2H_5)_2NH_2 \xrightarrow{\ n\text{-}C_3H_7SH\ } (n\text{-}C_3H_7)_2BN(C_2H_5)_2 + C_3H_8 \ .$$

The authors of the present paper state that in the synthesis of n-di-
butyl (amino) boron carried out by Wiberg et al. (Ref.3), Booth and
Kraus (Ref.4), as well as Evers et al. (Ref.5), not this substance is
concerned, since the properties of n-dibutyl (amino) boron synthesized

Card 2/3

84859

Catalytic Effect of Mercaptanes Upon the
Conversion of Boron Trialkyls Under the
Action of Ammonia, Amines, and Alcohols

S/062/60/000/010/013/018
B015/B064

by the authors were other than those given by the afore-mentioned re-
searchers. The difficultly accessible methyl esters R_2BOCH_3 were ob-
tained by the reaction

$$(n-C_3H_7)_3B + CH_3OH \xrightarrow{n-C_3H_7SH} (n-C_3H_7)_2BOCH_3 + C_3H_8$$

. By heating the
mixture of n-dipropyl (amino) boron with dimethyl amine, it was possible
to synthesize n-dipropyl (diethyl amino) boron. The individual syntheses
are described. There are 6 references: 3 Soviet, 2 US, and 1 German.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo
               Akademii nauk SSSR (Institute of Organic Chemistry imeni
               N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: March 1, 1960

Card 3/3

84861

5.3700   2205, 1282, 1312

AUTHORS: Mikhaylov, B. M. and Bubnov, Yu. N.

TITLE: Chelate Acetyl Acetonates of Dialkyl Boric Acids

TEXT: In continuation of previous papers, the present article deals with the conversion of n-tripropyl- and tributyl boron, of the n-butyl ester of n-dibutyl thioboric acid, and of the methyl ester of n-dipropyl boric acid under the action of acetyl acetone. Three methods of synthesizing dialkyl boric acid acetyl acetonates (II) are described:

$$R_2B \underset{O=C-CH_3}{\overset{O-C-CH_3}{\rlap{\raise2pt{\diagup}}}}CH \quad (II)$$

$(R = n\text{-}C_3H_7, \ n\text{-}C_4H_9)$
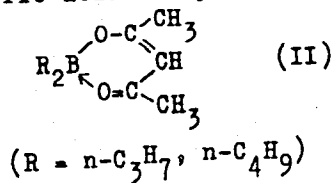
Card 1/3

84861

Chelate Acetyl Acetonates of Dialkyl Boric   S/062/60/000/010/015/018
Acids   B015/B064

After a short period of induction (apparently necessary to enolize
acetyl acetone and to form borenium acid), a vigorous exothermic reac-
tion sets in, in the first stage of which the anion of borenium acid
splits off the radical R^- in the form of an anion which, together with
a proton, forms a saturated hydrocarbon and is converted into acetonate
(II). The acetyl acetonate of n-dibutyl boric acid was also obtained by
heating the n-butyl ester of n-dibutyl thioboric acid and acetyl ace-
tone. In the third method of synthesis, an esterification was carried
out by heating the mixture of the methyl ester of n-dipropyl boric acid
and acetyl acetone; thus, the acetyl acetonate of n-dipropyl boric acid
was obtained. The resulting acetyl acetonates, golden-green, easily
mobile liquids, were stable in dry air. The spectrum of the acetyl ac-
tonate of n-dipropyl boric acid dissolved in CCl_4 is given in Fig. 1

and shows the bands of the C=C double bond and the complexly bound
carbonyl group of the chelate β-dicarbonyl compounds. The spectra were
taken by B. V. Lopatin on an ИКС-14 (IKS-14) spectrophotometer. There
are 1 figure and 11 references: 5 Soviet, 2 German, and 4 British.

Card 2/3

84861

Chelate Acetyl Acetonates of Dialkyl Boric   S/062/60/000/010/015/018
Acids   B015/B064

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo
               Akademii nauk SSSR (Institute of Organic Chemistry
               imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: March 11, 1960

Card 3/3

BUBNOV, Yu. N.

Cand Chem Sci - (diss) "Synthesis and transformations of esters of dialkylthioboric acids." Moscow, 1961. 12 pp; (Moscow Order of Lenin and Order of Labor Red Banner State Univ imeni M. V. Lomonosov); 120 copies; price not given; list of author's works at end of text (14 entries); (KL, 5-61 sup, 175)
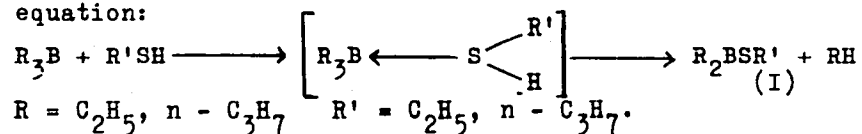
5.3600

AUTHORS: Mikhaylov, B. M. and Bubnov, Yu. N.

TITLE: Organoboron Compounds. LXV. Synthesis of Dialkyl Thioborates
            by Reaction of Mercaptans With Trialkyl Borines

PERIODICAL: Zhurnal obshchey khimii, 1961, Vol. 31, No. 1, pp. 160 - 166

TEXT: In addition to Refs. 1 - 6, the present paper describes the reac-
tions of trialkyl borines with ethanethiol, 1-propanethiol, and thio-
phenol, the conversions of dialkyl thioborates by alcohols and higher
mercaptans, and the reactions of trialkyl borines with alcohols in the
presence of catalytic amounts of mercaptans. The reaction of ethanethiol,
or 1-propanethiol with ethyl or tripropyl borines gives the corresponding
dialkyl thioborates (I), and saturated hydrocarbons according to the
equation:

$$R_3B + R'SH \longrightarrow \left[R_3B \longleftarrow S \begin{array}{c} \diagup R' \\ \diagdown H \end{array} \right] \longrightarrow R_2BSR' + RH$$
$$(I)$$

$$R = C_2H_5, \; n - C_3H_7 \quad R' = C_2H_5, \; n - C_3H_7.$$

Card 1/3

Organoboron Compounds. LXV. Synthesis of Di-
alkyl Thioborates by Reaction of Mercaptans
With Trialkyl Borines

88482
S/079/61/031/001/014/025
B001/B066

The reaction sets in at room temperature with further spontaneous heating.
Short heating between 110 and 160° is necessary to ensure completeness of
the reaction. Addition of mercaptan to trialkyl borine heated to 150°
yields hydrogen (10 %), and unsaturated hydrocarbon (Ref. 1). The reaction
of thiophenol with tri-n-butyl borine giving the phenyl ester of di-n-
butyl thioboric acid, develops like the reaction with tri-n-propyl borine
(Ref. 1), which yields not only a saturated hydrocarbon (n-butane) but
also considerable quantities of an unsaturated hydrocarbon (butylene),
and hydrogen

$$(n - C_4H_9)_3B + C_6H_5SH \longrightarrow (n - C_4H_9)_2BC_6H_5 + n - C_4H_{10} + C_4H_8 + H_2.$$
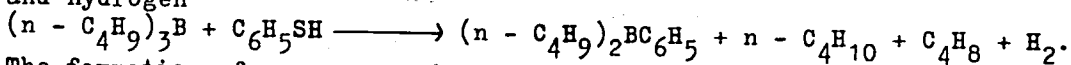
The formation of gaseous products of different compositions in the reac-
tion of trialkyl borines with compounds having a mobile hydrogen atom
(mercaptans and thiophenol) is explained by the reaction mechanism
suggested in Ref. 1. Further interpretations are given in the present
paper. The dialkyl thioborates are converted to dialkyl borates by heating
with alcohols (Ref. 4). With higher mercaptans, dialkyl thioborates are
subject to ester interchange. The synthesis of dialkyl borates from tri-

Card 2/3

Organoboron Compounds. LXV. Synthesis of Di-
alkyl Thioborates by Reaction of Mercaptans
With Trialkyl Borines

88482
S/079/61/031/001/014/025
B001/B066

alkyl borines and alcohols was found to take place with high yields also
when mercaptan catalysts are used. In this way, e. g. the n-butyl ester of
di-n-butylboric acid, and the methyl ester of di-n-propylboric acid were
synthesized from the corresponding trialkyl borine and alcohol. There are
12 references: 10 Soviet, 1 US, and 1 British.

ASSOCIATION: Institut organicheskoy khimii (Institute of Organic Chemistry)
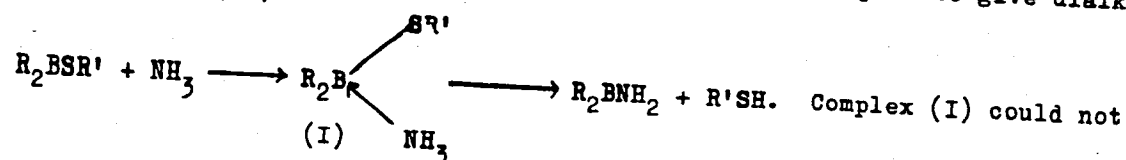
SUBMITTED: February 1, 1960

Card 3/3

89518

S-3700

S/079/61/031/002/011/019
B118/B208

AUTHORS: Mikhaylov, B. M. and Bubnov, Yu. N.

TITLE: Organoboron compounds.   LXVIII. Dialkyl borine amines and their
N-substituted compounds

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 2, 1961, 577-582

TEXT: In the present study, dialkyl borine amines and their N-substituted
derivatives were synthesized from dialkyl thioborates. The thioborates react
with ammonia (Refs. 1 and 2) in a strongly exothermic manner, even on cooling
and separate out, at the beginning, a crystalline complex compound $R_2BSR' \cdot NH_3$
(I) which decomposes at about 20°C, and splits off mercaptan to give dialkyl
borine amine (II):

$$R_2BSR' + NH_3 \longrightarrow R_2B \overset{SR'}{\underset{NH_3}{\diagup}} \longrightarrow R_2BNH_2 + R'SH.$$
(I)

Complex (I) could not

Card 1/4